

REMARKS

I. Introduction

In response to the pending Office Action, Applicants have amended claims 1-2, 17 and 19 in order to overcome the § 112 and 101 rejections and to further clarify the subject matter of the present invention. In addition, new claim 21 was added. Support for the amendments to claims 1-2, 17, 19 and new claim 21 may be found, for example, on pages 10-12 of the specification. Applicants submit that all effort has been made to prevent the introduction of new matter.

Applicants appreciate the granting of an interview with the Examiner on February 28, 2008, during which a strategy for amending the claims in order to overcome the stated rejections set forth in the pending Office Action was discussed. In addition, the § 101 and § 112 rejections were

Applicants respectfully submit that all pending claims are patentable for the reasons set forth below.

II. The Rejection Of Claims 1-3, 17 And 19-20 Under 35 U.S.C. § 101

Claims 1-3, 17 and 19-20 have been rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Applicants respectfully submit that the § 101 rejection is without merit.

It is alleged that the present invention is nothing more than generalization regarding the various factors to be taken into consideration and is short on any particular or specific direction

or guidance in achieving the desired results and in providing a concrete result. As such, the Examiner alleges that these claims do not produce a "useful, concrete and tangible result".

In response, Applicants have amended the claims in order to more clearly show how the claims do indeed produce a useful, concrete and tangible result. Applicants have demonstrated, during the interview with the Examiner, that producing a combination of price risk instruments for the market is a useful, concrete and tangible result.

As is discussed on page 12 of the specification, price risk instruments are positions taken for delivery or settlement at a prospective time in the future and may include, for example, forward contracts, futures contracts, congestion compensations contract and many other types of contracts used in the trading of electricity. As such, it is clear that having a combination of price risk instruments that are able to reduce risk in trading electricity is useful, in that it is (i) specific, (ii) substantial and (iii) credible.

As discussed in the previous response, the MPEP § 2107 statesd that "Specific utility" is *specific* to the subject matter claimed, and can "provide a well-defined and particular benefit to the public." To satisfy the "substantial" utility requirement, an asserted use must show that the claimed invention has a significant and presently available benefit to the public. As lowering risk to traders in electricity is a clearly well-defined, particular, significant and presently available benefit to the public, Applicants submit that the claims are specific and substantial. Furthermore, to not be credible, the claimed device must be totally incapable of achieving a useful result. As Applicants have clearly demonstrated that the method does achieve a useful result of lowering risk in trading electricity, it is clear that the claims are useful under 35 U.S.C. § 101.

Furthermore, to be concrete, the process must have a result that can be substantially repeatable or the process must substantially produce the same result again. The generation of a portfolio is based on calculations of concrete data obtained from locational prices of electricity in the market by use of a computer. The result will always be the same provided that the same data is used. As such, claims 1-3, 17 and 19-20 provide a concrete result.

Lastly, the “tangible” requirement does require that the claim must recite more than a 35 U.S.C. 101 judicial exception, in that the process claim must set forth a practical application of that judicial exception to produce a real-world result.

As stated above, the claims produce a portfolio to determine a way for hedging electricity prices. Since hedging for prices is neither an abstract idea, a law of nature or a natural phenomenon, the claims of the present invention do not reside under this judicial exception, not has it been suggested that they do. Moreover, a real-world result is produced. Accordingly, Applicants submit that claims 1-3, 17 and 19-20 are tangible, as defined by the USPTO guidelines.

As such, a useful, tangible and concrete result may be obtained. Accordingly, Applicants respectfully request that the § 101 rejection of claims 1-3, 17 and 19-20 be withdrawn.

III. The Rejection Of Claims 1-3, 17, 19 And 20 Under 35 U.S.C. § 112

Claims 1-3, 17, 19 and 20 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Applicants respectfully traverse this rejection for at least the following reasons.

Amended claims 1 and 17 recite the step of creating a portfolio of future positions which includes selecting a portfolio of price risk instruments which represent distribution factors

describing the physics of the flow of electricity in the network and the available market of price instruments.

Claims 1 and 17 were indicated by the Examiner during the interview to be unclear and vague. As such, Applicants have amended claims 1 and 17 in order to further clarify how the invention limits risk in the trading of electricity. As is clear, claims 1 and 17 were substantially amended in order to clearly show a step showing how the modeling step leads into the step of producing a combination of price risk instruments for the market. In addition, claim 1 was further amended to show further detailing of the step of modeling locational prices of the commodity in the market as a linear combination of congestion prices for a plurality of congestible transmission lines in the network.

It is also alleged that claim 19 is incomplete for omitting essential structural cooperative relationships of elements because the claim does not have structure or functionality. The specification clearly points out how a computer is used to calculate the variables x , y , P and A that are part of determining the price risk. Variables A (page 9, line 20 – page 11, line 25), P (page 12, lines 1-20), x and y (page 13, lines 5-16) are clearly defined. The results, based on mathematical equations calculated by computer, produce a portfolio for hedging a set of underlying positions at a prospective time. Furthermore, Applicants point out the portion of the specification on page 20, lines 18 and forward which recites

“One embodiment of the disclosure is related to the use of computer system 400 for trading. According to one embodiment of the disclosure, trading is provided by computer system 400 in response to processor 404 executing one or more sequences of one or more instructions contained in main memory 406.

Such instructions may be read into main memory 406 from another computer-readable medium, such as storage device 410...”

In this embodiment, the entire operation is performed by computer. All of the essential structural cooperative relationships of elements take place in the computer. Accordingly, the structural elements recited in the claim (“a computer-based system configured to generate a portfolio”) are all included in the claim. Furthermore, as the portfolio is generated by the computer, the function is defined as well.

Accordingly, in view of the above comments, Applicants respectfully request that the § 112 rejection of claims 1-3, 17, 19 and 20 be withdrawn.

IV. The Rejection Of Claims 1-3, 17 And 19-20 Under 35 U.S.C. § 103

Claims 1-3, 17 and 19-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Hildebrand and Ott (“Statistical Thinking for Managers”, 4th Ed. 1998, pp. 556-604 and 709) in view of Stoft (“Pricing Scarce Transmission In a Bilateral Market”, January 31, 1998), Bodie et al. (“Investments”, 3rd Ed., pp. 697-701, 810-830, G6) and Stoft, et al. (“Primer on Electricity Futures and Other Derivatives”, January 1998). Applicants respectfully traverse these rejections for at least the following reasons.

With regard to the present disclosure, claim 1 recites a method of using a computer for managing risk in a market related to electricity delivered over a network comprised of tradable network locations, comprising the steps of:

modeling locational prices of the commodity in the market as a linear combination of congestion prices for a plurality of congestible transmission lines in the network, further comprising the steps of: determining a set of distribution factors representing the physics of the

flow of electricity in the network, determining a plurality of values representing the prices of congestion for the congestible transmission lines at a prospective time; and determining a pattern of spot locational prices in the network at the prospective time;

creating a portfolio of future positions which includes selecting a portfolio of price risk instruments which represent distribution factors describing the physics of the flow of electricity in the network and the available market of price instruments; and

producing a combination of price risk instruments for the market in which at least one amount of each of the price risk instruments are proportioned to cause the eventual locational prices to be interlocked such that an effect of the congestion prices for the plurality of congestible transmission lines on the locational prices of the electricity is reduced.

Similarly, claim 17 recites a computer-readable medium bearing instructions for managing risk in a market related to electricity delivered over a network, said instructions being arranged to cause one or more processors upon execution thereby to perform the steps of: modeling locational prices of the electricity in the market as a linear combination of congestion prices for congestible lines in the network; creating a portfolio of future positions which includes selecting a portfolio of price risk instruments which represent distribution factors describing the physics of the flow of electricity in the network and the available market of price instruments; and producing a combination of price risk instruments for the market in which at least one amount of each of the price risk instruments are proportioned to cause the eventual locational prices to be interlocked such that an effect of the congestion prices for the congestible lines on the locational prices of the electricity is reduced.

Furthermore, claim 19 recites a portfolio generating system and portfolio comprising: a computer-based system configured to generate a portfolio having a plurality of price risk instruments; the portfolio comprising: the plurality of price risk instruments for a market related to electricity delivered over a network, wherein the price risk instruments y are proportioned such that $z'A - y'P'A = 0$, A represents distribution factors describing the physics of power flows in the network, P represents the available market of price instruments, z represents a market participant's underlying position in the market at a prospective time T , and primes denote transpositions.

As was discussed during the February 28, 2008 interview, the present disclosure is directed towards a method of hedging risk of forward locational markets. By choosing positions in a number of liquid forward locations in certain proportions, equivalency between known spot positions and future positions can be achieved, thereby limiting risk.

It is suggested that Stoft recites the limitations in claims 1 and 17: the computation of congestion prices for congestible lines in the network; and producing a combination of price risk instruments for the market in which at least one amount of each of the price risk instruments are proportioned to cause the eventual locational prices to be interlocked such that an effect of the congestion prices for the plurality of congestible transmission lines on the locational prices of the electricity is reduced.

In addition, Stoft is alleged to disclose the limitations of claim 19: a computer-based system configured to generate a portfolio having a plurality of price risk instruments; the portfolio comprising: the plurality of price risk instruments for a market related to electricity delivered over a network, wherein the price risk instruments y are proportioned such that $z'A -$

$y'P'A = 0$, A represents distribution factors describing the physics of power flows in the network, P represents the available market of price instruments, z represents a market participant's underlying position in the market at a prospective time T , and primes denote transpositions.

However, as was discussed during the interview with the Examiner, Stoft fails to disclose a step of creating a portfolio of future positions which includes selecting a portfolio of price risk instruments which represent distribution factors describing the physics of the flow of electricity in the network and the available market of price instruments. Stoft only refers to congestion pricing describe the theory in the *spot* electricity market (see, Abstract of Stoft). One aspect of one of the present embodiments is the assumption that the spot pricing in electricity markets is efficient (and this is well-known in the art), but that the forward or futures markets may not be efficient. As such, this embodiment describes techniques by which one can either profitably arbitrage such inefficiencies (if they exist) or partially or completely hedge their exposure to congestion risk in forward or futures markets by creating a portfolio of future positions.

In contrast, Stoft is very limited in that it holds true for a certain pricing regime only, Chao-Peck pricing, whereas the present embodiment does not depend on Chao-Peck pricing. As such, Stoft fails to disclose the limitation of claims 1 and 17 of creating a portfolio of future positions which includes selecting a portfolio of price risk instruments which represent distribution factors describing the physics of the flow of electricity in the network and the available market of price instruments; and the limitation of claim 19 of generating a portfolio having a plurality of price risk instruments wherein z represents a market participant's underlying position in the market at a prospective time T . Moreover, Bodie is also silent with respect to forward or futures markets.

Accordingly, it is submitted that Hildebrand, Stoft and Bodie, alone or in combination, do not render claims 1, 17 and 19 or any pending claims dependent thereon, obvious. As such, Applicants respectfully request that the § 103 rejection of claims 1-3, 17 and 19-20 be withdrawn.

V. All Dependent Claims Are Allowable Because The Independent Claim From Which They Depend Is Allowable

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as claims 1, 17 and 19 are patentable for the reasons set forth above, it is respectfully submitted that all pending dependent claims are also in condition for allowance.

VI. Conclusion

Having fully responded to all matters raised in the Office Action, Applicants submit that all claims are in condition for allowance, an indication of which is respectfully solicited.

Application No.: 09/522,709

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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